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THE LEGAL BASIS OF RATE REGULATION. FAIR RETURN ON THE VALUE EMPLOYED FOR THE PUBLIC SERVICE.

I. PRELIMINARY CONSIDERATIONS—*Constitutional Limitations.*¹

Under the Constitution of the United States, as well as those of the various States, private property cannot be taken for public use without due compensation. Private property invested in the plant of a public service corporation remains private property, even though it is so affected by the public use to which it is devoted that it is largely under the control of the State. It does not in any sense belong to the public, as some authorities ill-advisedly state in discussing the legality of regulation.²

One way in which the State may legitimately exercise its authority over property devoted to the service of the public is by the regulation of the rates to be charged.³ Now, it is plain that if the regulation of rates were allowed to be carried to the extent of diminishing the return to a point below that which capital earns elsewhere from equally safe investments, regulation would become, in a certain sense and to a considerable degree, confiscation. At this point, however, regulation conflicts with and is limited by the constitutional provisions and doctrines above alluded to,⁴ and it is well settled law that the owner of property devoted to the public service is, in the absence of extraordinary circumstances,

¹See article on "Public Service Company Rates And The Fourteenth Amendment," by N. Matthews Jr. and W. G. Thompson, (1901) 15 Harv. L. Rev. 249, 253.

²For an example of such a statement, see *San Diego Water Co. v. City of San Diego* (1897) 118 Cal. 556, 50 Pac. 633.

³*Kennebec Water District v. City of Waterville* (1902) 97 Me. 185, 54 Atl. 6, 12; *San Diego Land & Town Co. v. Jasper* (1898) 89 Fed. 274, 281, s. c. 110 Fed. 702; *Seaboard Air Line Ry. Co. v. Railroad Commission* (1907) 155 Fed. 792, 805; *Smyth v. Ames* (1897) 169 U. S. 466, 544, affirmed 64 Fed. 165; 15 Harv. L. Rev. 250.

⁴*Central Ga. Ry. Co. v. Railroad Com. of Ala.* (1908) 161 Fed. 925, 944; *Cumberland Telephone & Telegraph Co. v. Memphis* (1908) 183 Fed. 875; Investigation of advances in rates No. 3400, decided by the Interstate Commerce Commission February 22, 1911, 18; *Kennebec Water District v. City of Waterville* (1902) 97 Me. 185, 54 Atl. 6, 14; *Metropolitan Trust Co. v. Houston & Texas T. C. Ry. Co.* (1898) 90 Fed. 683, 688; *Pioneer Tel. & Tel. Co. v. Westenhaver* (Jan. 10, 1911) Sup. Ct. of Oklahoma, No. 503 (not yet reported); *San Diego Land & Town Co. v. Jasper* (1898) 89 Fed. 274, 281, 283, s. c. 110 Fed. 702; 3 Thompson on Corp's (2nd ed. 1909) § 2965; 15 Harv. L. Rev. 254.

entitled to a fair return upon the value employed for the public convenience.⁵

*The Value Upon Which The Return is to be Measured.*⁶

If the question were an original one, there would be two possible tests for determining the value of the property employed for the public convenience upon which the return is to be measured; first, the actual investment; second, the fair present value. In behalf of the adoption of the actual investment as a basis, it might be argued that, unless the return be measured thereby, investors will not devote their property to public service enterprises, but will seek other fields, where they can determine their own rates.⁷ The

⁵Ames v. Union Pacific Railway Co. (1894) 64 Fed. 165, affirmed 169 U. S. 466; Central Ga. Ry. Co. v. Railroad Com. of Ala. (1908) 161 Fed. 925, 944, 945; Investigation of advances in rates No. 3400, decided by the Interstate Commerce Commission February 22, 1911, 4; Kennebec Water District v. City of Waterville (1902) 97 Me. 185, 54 Atl. 6, 14; Long Branch Commission v. Tintern Manor Water Co. (1905) 70 N. J. Eq. 71, 62 Atl. 474, 478, 479; Matthews v. Board of Corporation Commissioners (1901) 106 Fed. 7; Milwaukee El. Ry. & Light Co. v. Milwaukee (1898) 87 Fed. 577, 579; Pioneer Tel. & Tel. Co. v. Westenhaver (Jan. 10, 1911) Sup. Ct. of Oklahoma, No. 503 (not yet reported); San Diego Land & Town Co. v. Jasper (1903) 189 U. S. 439, 442, affirming 110 Fed. 702; San Diego Land & Town Co. v. National City (1899) 174 U. S. 739, 756, affirming 74 Fed. 79; Shepard v. Northern Pac. Ry. Co. (1911) 184 Fed. 765, 801; Spring Valley Water Company v. San Francisco (1908) 165 Fed. 667, 672; Trustees of Saratoga Springs v. Saratoga Gas, etc. Co. (1907) 122 App. Div. 203, 220, reversed on other grounds 191 N. Y. 123; Willcox v. Consolidated Gas Co. (1909) 212 U. S. 19; Columbus Ry. and Light Co. v. Columbus, C. C., S. D. Ohio, E. Div., No. 1206, Report of Special Master, June 8th, 1906; 9 COLUMBIA LAW REVIEW 273.

As pointed out by the Master in the case last cited, rate making is not in general a judicial function. See Shepard v. Northern Pac. Ry. Co. (1911) 184 Fed. 765, 807. The courts deal only with actual rates, and then merely for the purpose of determining their character. In Oklahoma, however, the constitution confers upon the Supreme Court the power of rectifying the rates fixed by the Corporation Commission. See Pioneer Tel. & C. Co. v. Westenhaver, *supra*.

⁶For a general examination of the question: see Beale and Wyman, Railroad Rate Regulation (1906) §§ 331-337; 2 Wyman on Public Service Corporations (1911) §§1080-1112.

⁷The actual investment test was apparently adopted in Coal & Coke Ry. Co. v. Conley (W. Va. 1910) 67 S. E. 613, 639; Cumberland Telephone & Telegraph Co. v. Memphis (1908) 183 Fed. 875; New Memphis Gas & Light Co. v. Memphis (1896) 72 Fed. 952. In Brymer v. Butler Water Co. (1897) 179 Pa. St. 231, 36 Atl. 249 and Cotting v. Kansas City Stock-Yards Co. (1897) 82 Fed. 839, 845, reversed 183 U. S. 79 on another ground, the investment is spoken of as the proper basis, but it is not certain whether actual investment, rather than present value, is meant. The circumstances under which the actual investment would furnish a satisfactory test are enumerated in Coal & Coke Ry. Co. v. Conley (W. Va. 1910) 67 S. E. 613, 640; Investigation of advances in rates No. 3400 decided by the Interstate Commerce Commission February 22, 1911, 15.

answer to this, and, at the same time, the reason for the adoption of present value as the true measure, are one.⁸ In the first place, the latter is the measure of compensation in actual condemnation proceedings, and, as we have seen, regulation which reduces rates below a certain point is *pro tanto* condemnation. There cannot well be one basis for outright condemnation, and another for determining whether regulation is illegal because confiscatory.⁹ Furthermore, rate regulation has a dual aspect.¹⁰ The owners are entitled to a fair return, but no more can be demanded of the public than the services are really worth to them. Roughly, the latter would be based on the present value of a plant which the public might erect for its own supply, or the figure at which it could take over, under the exercise of the power of eminent domain, the properties the return upon which is being regulated. In either

⁸The reasons for not adopting the actual investment basis are enumerated in *Ames v. Union Pacific Railway Co.* (1894) 64 Fed. 165, affirmed 169 U. S. 466; *Missouri Pacific Ry. Co. v. Smith* (1895) 60 Ark. 221, 29 S. W. 752; In the Matter of Proposed Advances in Freight Rates (1903) 9 I. C. C. Rep. 382, 403, and *San Diego Land & Town Co. v. National City* (1896) 74 Fed. 79, affirmed 174 U. S. 739. For further discussion and authorities, see *infra*, "The Original Cost of Construction."

⁹*Ames v. Union Pacific Railway Co.* (1894) 64 Fed. 165, affirmed 169 U. S. 466; *San Diego Water Co. v. City of San Diego* (1897) 118 Cal. 556, 50 Pac. 633; but it should be noted that condemnation and rate regulation are not analogous in every respect. *Brunswick & T. Water Dist. v. Maine Water Co.* (1904) 99 Me. 371, 59 Atl. 537. See *infra*, "Franchises." In general, however, valuation, whether in rate, condemnation or tax assessment cases, rests on the same general principles. See *State ex rel. Bee B'l'd'g. Co. v. Savage* (1902) 65 Neb. 714, 91 N. W. 716, 724. The same may be said as to the rate cases involving different kinds of public utilities. In all, reasonableness, from whatever point of view, must be determined in much the same way. See Beale and Wyman, *Railroad Rate Regulation* (1906) § 327. Electricity, gas, railroad, water and other rate cases, as well as those concerned with condemnation and tax valuations will, therefore, be considered without distinction, unless the nature, either of the subject or of the property, requires that one shall be made.

¹⁰*City of Chicago v. Rogers Park Water Co.* (1905) 214 Ill. 212, 73 N. E. 375, 370; *Coal & Cowe Ry. Co. v. Conley* (W. Va. 1910) 67 S. E. 613, 639; *Covington etc. Turnpike Co. v. Sandford* (1896) 164 U. S. 578, 596; *Interstate Commerce Commission v. Chicago Great Western Ry. Co.* (1905) 141 Fed. 1003, 1015; *Kennebec Water District v. City of Waterville* (1902) 97 Me. 185, 54 Atl. 6, 14; *Matthews v. Board of Corporation Commissioners* (1901) 106 Fed. 7, 10; *Milwaukee El. Ry. & Light Co. v. Milwaukee* (1898) 87 Fed. 577, 579; In the Matter of Proposed Advances in Freight Rates (1903) 9 I. C. C. Rep. 382, 401; *San Diego Land & Town Co. v. National City* (1899) 174 U. S. 739, affirming 74 Fed. 79; *Seaboard Air Line Ry. Co. v. Railroad Commission* (1907) 155 Fed. 792, 805; *Shepard v. Northern Pac. Ry. Co.* (1911) 184 Fed. 765, 801; *Smyth v. Ames* (1897) 169 U. S. 466, affirmed 64 Fed. 165; *Spring Valley Waterworks v. San Francisco* (1903) 124 Fed. 574; Beale and Wyman, *Railroad Rate Regulation* (1906) §§ 311-327; Noyes, *American Railroad Rates* (1905) 32; 2 Wyman on Public Service Corporations (1911) §§ 1060, 1065-70.

case, the figure at which you arrive is present value. That is the legal basis for any determination of rates.¹¹

It has been said that, "There has been no agreement of all the authorities on this question." This statement, though literally true, is substantially inaccurate. In practice it is well settled that the value upon which a public service company is entitled to a fair return is the *present value* of its property devoted to the public use.¹² This rule, properly applied, is sufficient for the determina-

¹¹It must be noted that, because of the dual aspect of the question, present value is not always controlling. Rather it may be said that while rates *should* be reasonable both to the utility and to the public, when possible, they *must* in any event be reasonable to the public. *Brunswick & T. Water Dist. v. Maine Water Co.* (1904) 99 Me. 371, 59 Atl. 537; *Cotting v. Kansas City Stock-Yards Co.* (1901) 183 U. S. 79, 95; *Covington etc. Turnpike Co. v. Sandford* (1896) 164 U. S. 578, 596; *Milwaukee El. Ry. Co. v. Milwaukee* (1898) 87 Fed. 577, 581; *Minneapolis & St. L. Ry. Co. v. Minnesota* (1902) 186 U. S. 257, 268; *Missouri Pacific Ry. Co. v. Smith* (1895) 60 Ark. 221, 29 S. W. 752, 755; *Shepard v. Northern Pac. Ry. Co.* (1911) 184 Fed. 765, 801; *Spring Valley Water Company v. San Francisco* (1908) 165 Fed. 667. Thus, where a plant is adapted for a larger service than is required, rates which will yield a return on the entire investment are unreasonable to the consumer. *In re Arkansas Railroad Rates* (1909) 168 Fed. 720; *Coal & Coke Ry. Co. v. Conley* (W. Va. 1910) 67 S. E. 613, 639; *Missouri, Kansas & Texas Ry. Co. v. Interstate Commerce Commission* (1908) 164 Fed. 645; *San Diego Land & Town Co. v. Jasper* (1903) 189 U. S. 439, affirming 110 Fed. 702; *State ex rel. Railroad Commissioners v. Seaboard Air Line Railway* (1904) 48 Fla. 129, 37 So. 314, affirmed 203 U. S. 261, 319; *Beale and Wyman, Railroad Rate Regulation* (1906) § 462. It seems a just criticism of this factor in rate regulation to say that under such circumstances there is an actual taking of the property of the investor. It remains devoted to the public service, but cannot earn the amount that it would if reinvested elsewhere. In this respect the owner is worse off than if his property were taken outright without adequate compensation. *Ames v. Union Pacific Railway Co.* (1894) 64 Fed. 165, affirmed 169 U. S. 466. Even though the rates to the individual user are high, are his constitutional rights invaded? See *Brooklyn Union Gas Co. v. City of New York* (N. Y. 1906) 50 Misc. 450, affirmed 115 App. Div. 69.

¹²*Ames v. Union Pacific Railway Co.* (1894) 64 Fed. 165, affirmed 169 U. S. 466; *Brunswick & T. Water Dist. v. Maine Water Co.* (1904) 99 Me. 371, 59 Atl. 537; *Capital City Gaslight Co. v. Des Moines* (1896) 72 Fed. 829; *Cedar Rapids Gaslight Co. v. Cedar Rapids* (1909) 144 Ia. 426, 120 N. W. 966, 968; *Cedar Rapids Water Co. v. Cedar Rapids* (1902) 118 Ia. 234, 91 N. W. 1081, 1090; *Consolidated Gas Co. v. City of New York* (1907) 157 Fed. 849, 854-6; *Cumberland Telephone & Telegraph Co. v. Railroad Commission* (1907) 156 Fed. 823, reversed 212 U. S. 414; *Hill v. Antigo Water Co.* (1909) 3 Wis. R. R. Com. Rep. 623; *Matthews v. Board of Corporation Commissioners* (1901) 106 Fed. 7, 9; *Monheimer v. Brooklyn Union El. R. R. Co.* (March 8, 1910) Pub. Ser. Comm. 1st Dist. N. Y. Nos. 351 & 353 (10 cent fare to Coney Island) 12; *National Water Works Co. v. Kansas City* (1894) 62 Fed. 853; *Pioneer Tel. & Tel. Co. v. Westenhaver* (Jan. 10, 1911) Sup. Ct. of Oklahoma, No. 503 (not yet reported); *San Diego Land & Town Co. v. National City* (1896) 74 Fed. 79, affirmed 174 U. S. 739; *San Joaquin & Kings River C. & I. Co. v. Stanislaus County* (1908) 163 Fed. 567, 575; *Shepard v. Northern Pac. Ry. Co.* (1911) 184 Fed. 765, 802; *Smyth v. Ames* (1897) 169 U. S. 466,

tion of every question that arises in connection with rate regulation.¹³ Difficulties arise principally with respect to the weight to be given to the various factors in the problem.

II. THE PRINCIPAL CONSIDERATIONS WHICH ENTER INTO THE ESTABLISHED RULE.¹⁴

Ordinarily, the present value of property is determined by reference to its market value, which means the price or value shown

affirmed 64 Fed. 165; *Spring Valley Waterworks v. San Francisco* (1903) 124 Fed. 574; *Spring Valley Water Company v. San Francisco* (1908) 165 Fed. 667; *Stanislaus County v. San Joaquin C. & I. Co.* (1904) 192 U. S. 201; *Columbus Ry. & Light Co. v. Columbus, C. C., S. D. Ohio E. Div. No. 1206*, Report of Special Master, June 8th, 1906; Report of St. Louis Pub. Serv. Comm. on Rates for Electric Light etc. Feb. 17th, 1911, 29, 59. For discussion of present value as the basis of rate regulation, see Beale and Wyman, *Railroad Rate Regulation* (1906) §§ 351-357; 15 Harv. L. Rev. 264-5; and correspondence in 53 *Electrical World* 509, 692, 740, between W. H. Winslow, F. E. Haskell and W. H. Bryan. Mr. Wyman in his recently published work on *Public Service Corporations* (1911) §§ 1099-1100 now recognizes present value as the "constitutional" basis, but still considers original cost, cost of reproduction, etc., as possible bases, rather than as measures of present value.

¹³It should be noted that while valuation is a useful means of determining the legality of a schedule of rates as a whole, it is often of but little assistance in considering individual rates. *Leechburg Borough v. Leechburg Waterworks Co.* (1908) 219 Pa. St. 263, 68 Atl. 669; 2 *Wyman on Public Service Corporations* (1911) §§ 1070-1078; 8 COLUMBIA LAW REVIEW 267, 270. In the case of railroad rates, for example, discrimination in particular rates has long been an important question. In other utilities the question of discrimination is of more recent importance. For a discussion of the various theories upon which different charges for different users of electricity depending upon the amount of current taken and the hours at which it is used, see Report of St. Louis Pub. Serv. Comm. on Rates for Electric Light etc., Feb. 17th, 1911, Appendices "B" & "C."

¹⁴See generally, 2 *Elliott on Railroads* (2nd ed. 1907) §§ 691-2; 4 *id.* § 1684; 2 *Hutchinson on Carriers* (3rd ed. 1906) § 583; *Noyes, American Railroad Rates* (1905) 26; 3 *Thompson on Corporations* (2nd ed. 1909) §§ 2950-2986 *passim*, § 2968; and *Ames v. Union Pacific Railway Co.* (1894) 64 Fed. 165, affirmed 169 U. S. 466; *Cedar Rapids Water Co. v. Cedar Rapids* (1902) 118 Ia. 234, 91 N. W. 1081, 1090; *Consolidated Gas Co. v. City of New York* (1907) 157 Fed. 849, 861; *Cumberland Telephone & Telegraph Co. v. Railroad Commission* (1907) 156 Fed. 823, reversed 212 U. S. 414; *Cumberland Telephone & Telegraph Co. v. Memphis* (1908) 183 Fed. 875; *Investigation of advances in rates No. 3400*, decided by the Interstate Commerce Commission Feb. 22, 1911, 14; *Kennebec Water District v. City of Waterville* (1902) 97 Me. 185, 54 Atl. 6, 14; *Missouri, Kansas & Texas Ry. Co. v. Love* (1910) 177 Fed. 493, 494; *Monheimer v. Brooklyn Union El. R. Co.* (March 8, 1910), Pub. Ser. Com. 1st Dist. N. Y. Nos. 351 & 353 (10 cent fare to Coney Island) 7; In the Matter of Proposed Advances in Freight Rates (1903) 9 I. C. C. Rep. 382; *San Diego Land & Town Co. v. Jasper* (1898) 89 Fed. 274, s. c. 110 Fed. 702; *San Diego Land & Town Co. v. National City* (1896) 74 Fed. 79, affirmed 174 U. S. 739; *Seaboard Air Line Ry. Co. v. Railroad Commission* (1907) 155 Fed. 792, 805; *Smyth v. Ames* (1897) 169 U. S. 466, affirmed 64 Fed. 165; *Southern Pacific Co. v. Bartine* (1909) 170 Fed. 725, 742. In an article entitled "The Urban Transportation Problem" 37 *Annals of The American*

by sales in the course of ordinary business. But such a measure is of little or no use in ascertaining the value of a complicated plant, which as a whole has no market value. The same may be said of much of its equipment. Some other means of determination must be sought.¹⁵ Those that readily suggest themselves are the original cost of construction of the plant under consideration, the amount and market value of its stocks and bonds, and the present cost of constructing a similar plant. These were recognized as proper factors for consideration in the determination of the present value of the property of a public service corporation for rate-making purposes in the leading case of *Smyth v. Ames*,¹⁶ and the rule as there stated by Mr. Justice Harlan has since been everywhere quoted as the law. He said:

"We hold, however, that the basis of all calculations as to reasonableness of rates to be charged by a corporation maintaining a highway under legislative sanction must be the fair value of the property being used by it for the convenience of the public. And in order to ascertain that value, the original cost of construction, the amount expended in permanent improvements, the amount and market value of its bonds and stock, the present as compared with the original cost of construction, the probable earning capacity of the property under particular rates prescribed by statute, and the sum required to meet operating expenses, are all matters for consideration, and are to be given such weight as may be just and right in each case. We do not say that there may not be other matters to be regarded in estimating the value of the property. What the company is entitled to ask is a fair return upon the value which it employs for the public convenience. On the other hand, what the public is entitled to demand is that no more be exacted from it for the use of a public highway than the services rendered are reasonably worth."

Under the circumstances of a particular case, one or the other of the above items may be given controlling weight in the

Academy of Political and Social Science 6, Mr. Bion J. Arnold, a well-known engineering expert in public service matters, states that the principal items which are to be taken into consideration are: (1) original investment; (2) legal, technical and financial development expenses; (3) working capital; (4) adequate service; (5) possible income; (6) operating and maintenance expense; (7) taxes and franchise payments; (8) reserve funds for insurance, damages and depreciation; (9) return on investment. For a case where the facts alleged were held on demurrer to sufficiently show the unreasonableness of the rates attacked, see *Reagan v. Farmers' Loan & Trust Co.* (1894) 154 U. S. 362.

¹⁵*Montgomery Co. v. Schuylkill Bridge Co.* (1885) 110 Pa. St. 54, 20 Atl. 407; *Mifflin Bridge Co. v. Juniata County* (1891) 144 Pa. St. 365, 22 Atl. 896; 15 Harv. L. Rev. 266. See also, discussion of market value of securities, *infra* under "Capitalization."

¹⁶(1897) 169 U. S. 466, 546.

determination of present value, or may be agreed upon by the parties as the proper test. In the majority of cases, however, all of these elements are considered.¹⁷ In a very few only has any one factor been deemed absolutely controlling.¹⁸ The merits of each will presently be considered.

Then, too, the question of what is a fair return upon the present value of the investment is a more or less complicated one. Before the matter of net income is reached at all, the various factors which enter into the cost of maintenance and operation must be disposed of. When that is accomplished, there remains the determination of the rate of return which capital so invested should earn. And, finally, it is often necessary to calculate the probable income under a particular rate.¹⁹

III. CONSIDERATIONS WHICH ENTER INTO THE DETERMINATION OF PRESENT VALUE²⁰—*The Original Cost of Construction.*²¹

The original cost of the construction is a well recognized factor

¹⁷Every fact or circumstance that will aid in arriving at present value should be considered. *Capital City Gaslight Co. v. Des Moines* (1896) 72 Fed. 829; *Cedar Rapids Gaslight Co. v. Cedar Rapids* (1909) 144 Ia. 426, 120 N. W. 966, 968; *Griffin v. Goldsboro Water Co.* (1898) 122 N. C. 206, 30 S. E. 319; *Hill v. Antigo Water Co.* (1909) 3 Wis. R. R. Com. Rep. 623; *Houston & Texas Central Railway Co. v. Storey* (1906) 149 Fed. 499, 502; *National Water Works Co. v. Kansas City* (1894) 62 Fed. 853, 864; *Pioneer Tel. & Tel. Co. v. Westenhaver* (Jan. 10, 1911) Sup. Ct. of Oklahoma No. 503 (not yet reported); *Miffin Bridge Co. v. Juniata County* (1891) 144 Pa. St. 365, 22 Atl. 806; *Shepard v. Northern Pac. Ry Co.* (1911) 184 Fed. 765, 802; *Southern Pacific Co. v. Bartine* (1909) 170 Fed. 725; *Columbus Ry. & Light Co. v. Columbus, C. C., S. D. Ohio E. Div. No. 1206*, Report of Special Master, June 8th, 1906. Assessed value for taxation purposes is a proper consideration. *St. Louis & San Francisco Ry. Co. v. Hadley* (1909) 168 Fed. 317; *San Diego Land & Town Co. v. Jasper* (1903) 189 U. S. 349, affirming 110 Fed. 702; 2 Wyman on Public Service Corporations (1911) §§ 1105-1106.

¹⁸See *San Diego Water Co. v. City of San Diego* (1897) 118 Cal. 556, 50 Pac. 633, 636-8.

¹⁹For authorities as to the items to be considered in determining "Fair Return" see that topic, *infra*, and 2 Wyman on Public Service Corporations (1911) §§ 1061-1062, 1120-1180.

²⁰See Beale and Wyman, *Railroad Rate Regulation* (1906) § 357; Noyes, *American Railroad Rates* (1905) 26; 2 Lewis on Eminent Domain (3d ed. 1909) § 722, 2 Wyman on Public Service Corporation (1911) §§ 1081-1090; article on "Waterworks Valuation and Fair Rates in the Light of the Maine Supreme Court Decisions in the Waterville and Brunswick Cases," by Leonard Metcalf, (1908) 34 American Soc. of Civ. Engineers 1101, *et seq.*; 8 COLUMBIA LAW REVIEW 217; 15 Harv. L. Rev. 265.

²¹See Beale and Wyman, *Railroad Rate Regulation* (1906) §§ 338-345. This test with modifications which do away with many of its objectionable features is adopted by the St. Louis Public Service Commission. See Report of St. Louis Pub. Serv. Comm. on Rates for Electric Light, etc., Feb. 17th, 1911, at p. 27; see also *Metropolitan Trust Co. v. Houston & Texas*

to be considered in determining present value.²² It is often urged, however, that it should be taken as the sole measure thereof. Whether this position is taken by the utility or by the rate-making power usually depends upon whether the present value is less than or exceeds the original cost, which is as good a criticism of such a stand as is needed. Every objection that can be urged against taking the actual investment as the basis of rate-making applies equally to the original cost of construction as the sole test of present value, and a great many other objections as well.²³ So long as the rule that the return is to be calculated upon the basis of the present value of the property is kept in mind, there can be little difficulty in giving this factor its proper weight. The plant may have been erected during a period of high prices under extravagant and inefficient management and superintendence.²⁴ The need of the community at the time of construction and the consequent pressure which was brought to bear to secure the investment at that particular time are entitled to weight to offset

T. C. Ry. Co. (1898) 90 Fed. 683; *Milwaukee El. Ry. & Light Co. v. Milwaukee* (1898) 87 Fed. 577. Original cost must, in general, be determined from the books of the company. For a discussion of evidence thus obtained, see *Columbus Ry. & Light Co. v. Columbus, S. C.*, S. D. Ohio, E. Div., No. 1206, Report of Special Master, June 8th, 1906; *Spring Valley Water Company v. San Francisco* (1908) 165 Fed. 667.

²²*Brunswick & T. Water Dist. v. Maine Water Co.* (1904) 99 Me. 371, 59 Atl. 537; *Consolidated Gas Co. v. City of New York* (1907) 157 Fed. 849, 855; *Kennebec Water District v. City of Waterville* (1902) 97 Me. 185, 54 Atl. 6, 15; *Shepard v. Northern Pac. Ry. Co.* (1911) 184 Fed. 765, 802; *Smyth v. Ames* (1897) 169 U. S. 466, 544, affirmed 64 Fed. 165; *West Chester & W. Plank Road Co. v. Chester County* (1897) 182 Pa. St. 40, 37 Atl. 905. *San Diego Water Co. v. City of San Diego* (1897) 118 Cal. 556, 50 Pac. 633, apparently holding that the original cost is not a proper consideration, is explained in Beale and Wyman, § 361. In some cases, it is difficult to determine whether "cost" means original or present cost. See *Clarion Turnpike & Bridge Co. v. Clarion County* (1896) 172 Pa. St. 243, 33 Atl. 580; *Mifflin Bridge Co. v. Juniata County* (1891) 144 Pa. St. 365, 22 Atl. 896.

²³*National Water Works Co. v. Kansas City* (1894) 62 Fed. 853, 864.

²⁴The reasons why the original cost of construction is no criterion are discussed in *Capital City Gaslight Co. v. Des Moines* (1896) 72 Fed. 829, 842; *Cleveland & C. Railway Co. v. Backus* (1893) 154 U. S. 439, 446; *Coal & Coke Ry. Co. v. Conley* (W. Va. 1910) 67 S. E. 613, 639; *Griffin v. Goldsboro Water Co.* (1898) 122 N. C. 206, 30 S. E. 319; *Pioneer Tel. & Tel. Co. v. Westenhaver* (Jan. 10, 1911) Sup. Ct. of Oklahoma, No. 593 (not yet reported); *San Diego Land & Town Co. v. Jasper* (1903) 189 U. S. 439, 442, affirming 110 Fed. 702; *San Diego Land & Town Co. v. National City* (1899) 174 U. S. 739, 757, affirming 74 Fed. 79; *San Diego Water Co. v. City of San Diego* (1897) 118 Cal. 556, 50 Pac. 633, 643-644; *Shepard v. Northern Pac. Ry. Co.* (1911) 184 Fed. 765, 803; *Southern Pacific Co. v. Bartine* (1909) 170 Fed. 725; *Stanislaus County v. San Joaquin C. & I. Co.* (1904) 192 U. S. 201, 213; *Steenerson v. Great Northern Ry. Co.* (1897) 69 Minn. 353, 72 N. W. 713, 715.

the factor of high prices,²⁵ but surely the public should not, under any circumstances, be obliged to contribute to an enhanced return by reason of the other elements. Newness of the plant under consideration frequently determines the weight to be given the original cost figure.²⁶

The worth of the services to the public is always important.²⁷ A plant may have been designed to afford a much larger service than there is any present demand for, in which case it would be unjust to require a part only of the expected users to pay a full return.²⁸ It must be expected, during the early years of operation, that profits will be deferred. The losses then incurred should be distributed among all the users of the property. This is accomplished by the device of allowing for "going value," which will be discussed later.

Then too, the original cost of constructing a plant to its present condition would include the cost, not only of improvements and betterments, but of replacements as well. In other words, it would take into account the cost of property which has been discarded, and which furnishes no present service. This is not a proper item. The cost of such property should have been written off by means of a depreciation fund. If this has not been done, it is either because of the inefficiency and lack of foresight of the management, or because the money which should have gone into such a reserve has been paid out in the form of dividends. In the latter event, the stockholders have received back a part of their capital and should not complain that they cannot both eat their cake and have it.²⁹

It is sometimes argued that depreciation should not be taken into account in rate-making because the rental value of property continues approximately constant, even though its salable

²⁵Hill v. Antigo Water Co. (1909) 3 Wis. R. R. Com. Rep. 623.

²⁶See *Inhabitants of Falmouth v. Falmouth Water Co.* (1902) 180 Mass. 325, 62 N. E. 255; where actual cost test was applied in appraisal proceedings under a municipal contract for purchase at "cash market value," upon completion, the plant being taken after four months' operation. Also see *Long Branch Commission v. Tintern Manor Water Co.* (1905) 70 N. J. Eq. 71, 62 Atl. 474, 479; where the original cost of construction of the recently completed portions of a waterworks plant was taken as the measure of their value, but as to old parts other factors were considered.

²⁷See *supra*, note 10, under "The Value Upon Which The Return is to be Measured."

²⁸See *infra*, "Standard of Plant."

²⁹See *infra*, "Depreciation" and "Depreciation Reserves."

value decreases; that the pay of a public servant should not be decreased simply because of its age.³⁰ This is a sentiment which hardly applies to the corporate servant. What the public is required to pay is the fair value of the services, and where there is regulation, only a fair return upon the present value of the investment. If the amount which the property cost was fair and reasonable and expended to the best advantage, if it has not been allowed to depreciate and the quantity and quality of the service has remained constant, certainly the plant is entitled to the same return as formerly, provided the standard of a fair return has not itself changed. But the other facts must be determined before cost can be given much weight.³¹

On the other hand, it may be a fact that the investors in the plant in question, with unusual foresight, took advantage of a period of business depression for the purchase of their materials and the erection of their plant; that they proceeded with great economy, prudence and engineering skill, so that to-day their investment is actually worth more than its original cost. In such a case, they are as much entitled to the benefit of the appreciation as under more usual circumstances liable to bear the burden of depreciation.³² Each is a fortune or misfortune of business and just as much the gain or loss of the investor in public service enterprises as in any others. There is no public guaranty of immunity from the one, or prohibition against the other.

Capitalization.

Another factor in the determination of present value, generally frowned upon by courts and avoided even by counsel, is that

³⁰See 53 *Electrical World* 509, 692, 740.

³¹The circumstances under which original cost may be entitled to considerable weight are stated in *Cumberland Telephone & Telegraph Co. v. Railroad Commission* (1907) 156 Fed. 823, 828, reversed 212 U. S. 414; *Hill v. Antigo Water Co.* (1909) 3 Wis. R. R. Com. Rep. 623; *Investigation of advances in rates No. 3400*, decided by the Interstate Commerce Commission February 22, 1911, 15.

³²*Brunswick & T. Water Dist. v. Maine Water Co.* (1904) 99 Me. 371, 59 Atl. 537; *Consolidated Gas Co. v. City of New York* (1907) 157 Fed. 849, 855; *Cotting v. Kansas City Stock-Yards Co.* (1897) 82 Fed. 839, 850, 853, reversed 183 U. S. 79, on other grounds; *Hill v. Antigo Water Co.* (1909) 3 Wis. R. R. Com. Rep. 623; *Shepard v. Northern Pac. Ry. Co.* (1911) 184 Fed. 765, 803. In *Cedar Rapids Gaslight Co. v. Cedar Rapids* (1909) 144 Ia. 426, 120 N. W. 966, 970, it was held that no consideration should be given to the fact that it would cost more to lay water pipes in the streets at the time of the valuation than when originally installed by reason of a pavement.

of capitalization.³³ The mere amount of stock and bonds outstanding against the properties of any corporation is, doubtless, a very poor indication of its value, either past, present or future.³⁴ This is, however, less and less true each year in the case of public service corporations, in proportion as they are being subjected to the paternal care and regulation of the increasingly numerous and powerful public service commissions.

But aside from the mere numerical side of capitalization, there is an aspect of it which may be of some weight in determining present value. If there is any sense in which a complicated operating plant may be said to have a market value, that value is the market value of its securities.³⁵ This value is, of course, subject to inflation by speculation, and to a considerable extent depends upon earnings, for which reasons it is to be suspected.³⁶ The first of these difficulties is largely avoided if the average or normal market value of the securities is taken.³⁷

This method of ascertaining the value of all the property of a

³³For discussion of this factor in the determination of present value, see Beale and Wyman, *Railroad Rate Regulation* (1906) §§ 346-350; Noyes, *American Railroad Rates* (1905) 27. 2 Wyman on *Public Service Corporations* (1911) §§ 1091-1098. The amount and market value of the securities of a public service corporation are legitimate considerations, but are no more conclusive criteria than are the other factors. *Houston & Texas Central Railway Co. v. Storey* (1906) 149 Fed. 499, 502; *Monheimer v. Coney Is. & B'k'l'n. R. R. Co. Pub. Serv. Comm.* First Dist. N. Y. Jan. 10, 1911 (Coney Island 10 cent fare case); *Monongahela Water Co.'s Case* (1909) 223 Pa. St. 323, 72 Atl. 625; *Spring Valley Waterworks v. San Francisco* (1903) 124 Fed. 574; *Spring Valley Water Company v. San Francisco* (1908) 165 Fed. 667, 715; especially, where a large part of the securities represents the purchase price of the control of subsidiary companies whose properties are not actually owned. *Consolidated Gas Co. v. City of New York* (1907) 157 Fed. 849, 861; *Shepard v. Northern Pac. Ry. Co.* (1911) 184 Fed. 765, 802. *San Diego Water Co. v. City of San Diego* (1897) 118 Cal. 556, 50 Pac. 633, apparently holding that the amount and market value of the stocks and bonds are not even proper considerations, is explained in Beale and Wyman, § 361.

³⁴As a test it is useless because it must first be determined whether or not it represents a real value. *Knoxville v. Knoxville Water Co.* (1909) 212 U. S. 1; *New Memphis Gas & Light Co. v. Memphis* (1896) 72 Fed. 952. It may be of some assistance, however, in solving the problem of whether a corporation is earning an unreasonably large income for its stockholders. See *Monheimer v. Brooklyn Union El. R. R. Co.* (March 8, 1910), *Pub. Ser. Comm.* 1st Dist. N. Y. Nos. 351 & 353 (10 cent fare to Coney Island) 11.

³⁵*Montgomery Co. v. Schuylkill Bridge Co.* (1885) 110 Pa. St. 54, 20 Atl. 405; *Mifflin Bridge Co. v. Juniata County* (1891) 144 Pa. St. 365, 22 Atl. 896.

³⁶*Consolidated Gas Co. v. City of New York* (1907) 157 Fed. 849, 861; *State ex rel. Bee B'l'd'g. Co. v. Savage* (1902) 65 Neb. 714, 91 N. W. 716, 724.

³⁷*Monheimer v. Coney Is. & Bklyn. R. R. Co. Pub. Serv. Comm.* First Dist. N. Y. Jan. 10, 1911 (Coney Island 10 cent fare case).

corporation is often approved in assessment for purposes of taxation.³⁸ It would seem particularly useful, in connection with a value of the tangible properties obtained by some other method. The difference between the latter and the market value of the securities may be conceived of as the market value of the intangible elements, such as franchises, going value, good will, *et cetera*, which may or may not be disregarded in the original cost test, and which cause so much difficulty, as will be seen later, in the cost of reproduction test. This is merely a suggestion. No case can be pointed to in which it has been adopted,³⁹ but for purposes of rate-making, it seems far preferable to any means of valuing "franchises" which is obviously and directly based on earning power, such, for example, as that applied in franchise tax assessments.⁴⁰

Earning Power.

Earning capacity is an important consideration in rate-making, at least, so far as the courts are concerned. It often devolves upon them to determine whether rates prescribed by legislative bodies are reasonable or confiscatory, and for that purpose it is necessary to ascertain the amount that can be earned under a particular schedule. This is generally accomplished by applying the prescribed rates to past business.⁴¹ Of course, this sum once as-

³⁸*Adams Express Company v. Ohio* (1896) 166 U. S. 185; *Investigation of advances in rates No. 3400*, decided by the Interstate Commerce Commission Feb. 22, 1911, 15; *San Francisco National Bank v. Dodge* (1905) 197 U. S. 70, 80; *State ex rel Bee B'l'd'g. Co. v. Savage* (1902) 65 Neb. 714.

³⁹In the cases last cited, this is considered a good measure of both tangible and intangible properties together. See also *Missouri, Kansas & Texas Ry. Co. v. Love* (1910) 177 Fed. 493, 496.

⁴⁰While this does away with earnings as a direct basis of franchise values, it does not get rid of the entire difficulty arising from allowing a value based thereon, because the market value of the securities also depends to a considerable extent upon earnings. *Cotting v. Kansas City Stock-Yards Co.* (1897) 82 Fed. 839, reversed 183 U. S. 79, on another ground. See *infra*, "Franchises." But, taking the market value of the securities into account has the advantage of securing some recognition of the fact that the individual investors rely largely upon earning capacity. To what extent they are entitled to consideration is uncertain. See *Consolidated Gas Co. v. City of New York* (1907) 157 Fed. 849; *Investigation of advances in rates No. 3400*, decided by the Interstate Commerce Commission Feb. 22, 1911; *Willcox v. Consolidated Gas Co.* (1909) 212 U. S. 19, where this point is noticed. For discussion of the valuation of intangible properties, see *infra*, "Intangible Property."

⁴¹*Central of Ga. Ry. Co. v. Railroad Com. of Ala.* (1908) 161 Fed. 925, 998; *Lincoln Gas & Electric Light Co. v. City of Lincoln* (1909) 182 Fed. 926, 929; *Missouri, Kansas & Texas Ry. Co. v. Interstate Commerce Commission* (1908) 164 Fed. 645; *Smyth v. Ames* (1897) 169 U. S. 466, affirmed 64 Fed. 165, 544.

certained is useful in solving the problem only in connection with a present value by which to determine whether it will yield a fair return. It is, then, only an additional computation which the court must make to solve the problem, and not one which will aid in determining present value.

In connection with the question of what can be earned under prescribed rates, it is frequently stated that a reduction of rates does not necessarily decrease profits; that the probable increase in business under lower rates may be considered as offsetting the decrease in income which would result if the business remained constant in amount.⁴² The weight which courts give to such a consideration is unascertainable outside of their council chambers. It is submitted that it must be used with great care; in fact, only as a factor of safety. By that is meant that if a particular schedule of rates yields an estimated income which is just over the line between reasonable and confiscatory, the safety factor may be used to determine the result.⁴³ Otherwise, it would seem to be an extremely misleading factor.⁴⁴ While a reduction of rates may materially increase the consumption of water, for example, without also increasing operating expenses to an appreciable extent, the same could not be said of gas and electricity where operating expenses would probably be in proportion to production.⁴⁵ Or in the case of a street railway, a reduction of fare probably would not cause any increase in traffic whatever.

Earning capacity can not logically be a measure of the present value of the plant of either a regulated or an unregulated public utility. The result sought for is the basis of earning capacity. If, then, earning capacity is taken as the measure of its own basis, the calculator is following the circumference of a circle, and is in a fair way of solving the problem of perpetual motion.⁴⁶ Earning capacity has, however, been advocated by at least one court as the

⁴²*Cotting v. Kansas City Stock-Yards Co.* (1897) 82 Fed. 839, 850; *Willcox v. Consolidated Gas Co.* (1909) 212 U. S. 19. See Generally 2 Wyman on Public Service Corporations (1911) § 1129.

⁴³*Cotting v. Kansas City Stock-Yards Co.* (1897) 82 Fed. 839, reversed 183 U. S. 79, on another ground.

⁴⁴*Capital City Gaslight Co. v. Des Moines* (1896) 72 Fed. 829, 846; *Consolidated Gas Co. v. City of New York* (1907) 157 Fed. 849, 868.

⁴⁵See *Louisiana R. R. Comm. v. Cumberland Tel. Co.* (1909) 212 U. S. 414, reversing 156 Fed. 823, where this was held to be the case in regard to telephone service.

⁴⁶*Kennebec Water District v. City of Waterville* (1902) 97 Me. 185, 54 Atl. 6, 20; 15 Harv. L. Rev. 268; Noyes, *American Railroad Rates* (1905) 27-8.

one and only test, the *sine quo non* of tests, of present value in rate-making.⁴⁷

It is adopted quite generally as the measure of franchise value in franchise tax assessments. In the latter, however, quite different considerations are involved.

*The Cost of Reproduction.*⁴⁸

As engineering skill and experience increase, and the courts become more intimate with the valuation problem, the measure of present value afforded by the cost of present construction meets with more favor. Indeed, an examination of the cases that have been decided in the last five years leads one to believe that the figure thus obtained has been determinative in nearly every one of them. There is nothing peculiar in this fact. After all, this is the only effective means of determining the *present value* to a community of a complicated and extensive plant, with tangible and intangible properties, which it has taken years to develop. This statement will, doubtless, be scoffed at, particularly as to intangible properties. It is believed, however, to be substantially accurate. Engineers are very generally in favor of determining present value in this way. The courts must eventually accept the views of the experts, and have to a very large extent already done so.

⁴⁷San Diego Water Co. v. City of San Diego (1897) 118 Cal. 556, 50 Pac. 633, 636, followed in Redlands L. C. W. Co. v. Redlands (1898) 121 Cal. 365, 53 Pac. 843, but the court does not actually apply the test so highly approved, but rather that of original cost of construction. Two judges dissented. For explanation of these cases, see Spring Valley Waterworks v. San Francisco (1903) 124 Fed. 574; Beale and Wyman, Railroad Rate Regulation (1906) § 361, 2 Wyman on Public Service Corporations (1911) § 1109. It should be noted that Mr. Wyman states that these cases apparently hold that nothing but the cost of reproduction is to be considered. While this hardly accords with the statement made above as to what they hold, it is not safe to contradict too flatly, in view of the unsatisfactory nature of the opinions in San Diego Water Co. v. City of San Diego *supra*. See also State *ex rel.* Bee B'l'd'g. Co. v. Savage (1902) 65 Fed. 714, 91 N. W. 716, 726; Investigation of advances in rates No. 3400, decided by the Interstate Commerce Commission February 22, 1911, 17; Kennebec Water District v. City of Waterville (1902) 97 Me. 185, 54 Atl. 6, 12, 15; Newburyport Water Co. v. Newburyport (1897) 168 Mass. 541, 47 N. E. 533. *Reasonable* earnings are important evidence where franchise values are allowed. Cotting v. Kansas City Stock-Yards Co. (1897) 82 Fed. 850, 853, reversed 183 U. S. 79, on other grounds; Gloucester Water-Supply Co. v. Gloucester (1901) 179 Mass. 365, 60 N. E. 977; Kennebec Water District v. City of Waterville (1902) 97 Me. 185, 54 Atl. 6, 12. See *infra*, "Franchises."

⁴⁸For an invaluable list of the items entering into the determination of the cost of reproduction, see the article on "Valuation of Intangible Street Railway Property" by Frank R. Ford, 37 Annals of The American Academy of Political & Social Science 119 *et seq.*

The critics of this method of determining present value have not, after all, hit upon any very solid objections to it. Their reasons for not adopting it can be divided into two classes; those based on a misunderstanding of what cost of reproduction means and of the elements which enter into it; those which question its accuracy and expediency.⁴⁹ The answer to the former is that the cost of reproduction test as applied to-day takes into consideration every element of value which it has been said to ignore—depreciation, franchises, going value, and the like.⁵⁰ As for its accuracy and expediency, the fact that it has been approved as the best means of determining present value by nearly all the great public service commissions in the United States,⁵¹ that it has been repeatedly approved by the Interstate Commerce Commission, but not adopted as the sole test only for the reason that the Supreme Court of the United States has held that it is merely *one* of the factors to be considered,⁵² that it is given practically controlling effect in the more recent decisions of at least the federal courts of inferior jurisdiction,⁵³ is answer enough. Besides, there are just as many

⁴⁹For cases in which the cost of reproduction test is criticised as not allowing for the factors which to-day are separately determined, as "depreciation" and "going value," see *Cedar Rapids Gaslight Co. v. Cedar Rapids* (1909) 144 Ia. 426, 120 N. W. 966, 970; *Metropolitan Trust Co. v. Houston & Texas T. C. Ry. Co.* (1898) 90 Fed. 683, 688; *Milwaukee El. Ry. & Light Co. v. Milwaukee* (1898) 87 Fed. 577, 585; *National Water Works Co. v. Kansas City* (1894) 62 Fed. 853, 864; *In the Matter of Proposed Advances in Freight Rates* (1903) 9 I. C. C. Rep. 382; *San Diego Water Co. v. City of San Diego* (1897) 118 Cal. 556, 50 Pac. 633, 636; *Report of St. Louis Pub. Ser. Com. on Rates for Electric Light, etc.*, Feb. 17th, 1911, 21; *Southern Pacific Co. v. Bartine* (1909) 170 Fed. 725. Beale and Wyman, *Railroad Rate Regulation* (1906) §§ 358-361; *Noyes, American Railroad Rates* (1905) 26; 2 *Wyman on Public Service Corporations* (1911) §§ 1110-1112; and paper by W. H. Williams (1910-1911) *American Economic Association Quarterly* 196 *et seq.* containing discussion by Edward B. Whitney and J. P. Cotton Jr.

⁵⁰See *Kennebec Water District v. City of Waterville* (1902) 97 Me. 185, 54 Atl. 6, 19; 15 *Harv. L. Rev.* 267.

⁵¹See for example *Hill v. Antigo Water Co.* (1909) 3 Wis. R. R. Com. Rep. 623; *Monheimer v. Brooklyn Union El. R. R. Co.* (March 8, 1910), *Pub. Ser. Com. 1st Dist. N. Y. Nos. 351 & 353* (10 cent fare to Coney Island) and *Pioneer Tel. & Tel. Co. v. Westenhover* (Jan. 10, 1911) *Sup. Ct. of Oklahoma No. 503* (not yet reported).

⁵²*Investigation of Advances in rates No. 3400*, decided by the Interstate Commerce Comm. Feb. 22, 1911, 17-18.

⁵³See *C. H. Venner Co. v. Urbana Waterworks* (1909) 174 Fed. 348, 352; *Consolidated Gas Co. v. City of New York* (1907) 157 Fed. 849, 855; *Lincoln Gas & Electric L. Co. v. City of Lincoln* (1909) 182 Fed. 926, 927; *Shepard v. Northern Pac. Ry. Co.* (1911) 184 Fed. 765, 803. See also *Town of Bristol v. Bristol & Warren Waterworks* (1901) 23 R. I. 274, 49 Atl. 974; *Brunswick & T. Water Dist. v. Maine Water Co.* (1904) 99 Me. 371, 59 Atl. 537; *Gloucester Water Supply Co. v. Gloucester* (1901)

objections on this score to any other test. Take, for example, that afforded by the original cost of construction. To obtain accurate results both bookkeeping and management must have been scientific as well as honest. There is hardly a public service corporation in existence that has had either continuously, if at all. Nor does such a test take into account the other elements for the alleged lack of which reproduction cost is said to be unsatisfactory.

It can hardly be conceived to-day that a valuation would be undertaken without great weight being given to the cost of reproduction.⁵⁴ It has an advantage for every disadvantage that any other test can show, and does away almost entirely with the separate consideration of business policy and honesty which are always involved in the original cost of construction. The other means of arriving at present value require scrutiny, the closeness of which usually depends upon the extent to which the results obtained depart from that given by the cost of reproduction. That is why the latter, in the more recent cases, is considered the most persuasive evidence of present value.

Standard of Plant to be Adopted.

Before a detailed examination of the elements entering into the calculation of the cost of reproduction is undertaken, several preliminary considerations should be disposed of. At the start, it must be decided whether the cost of present construction is actually to be based upon a work of reconstruction, that is, upon

179 Mass. 365, 60 N. E. 977; *People ex rel. D., L. & W. R. R. Co. v. Clapp* (1897) 152 N. Y. 490; *Pioneer Tel. & Tel. Co. v. Westenhaver* (Jan. 10, 1911) Sup. Ct. of Oklahoma No. 503 (not yet reported) and *Steenerson v. Great Northern Ry. Co.* (1897) 69 Minn. 353, 72 N. W. 713.

⁵⁴It is, of course, generally recognized as proper evidence to be taken into consideration. *Contra Costa Water Co. v. Oakland* (1904) 165 Fed. 518, 630; *Kennebec Water District v. City of Waterville* (1902) 97 Me. 185, 54 Atl. 6, 15, 18; *Montgomery Co. v. Schuylkill Bridge Co.* (1885) 110 Pa. St. 54, 20 Atl. 407; *Smyth v. Ames* (1897) 169 U. S. 466, affirmed 64 Fed. 165; *State ex rel. Railroad Comm. v. Minneapolis & St. L. R. R. Co.* (1900) 80 Minn. 191, 83 N. W. 60, affirmed 186 U. S. 257 *sub. nom.* *Minneapolis & St. L. R. R. Co. v. Minnesota*. Mr. Wyman, even in his latest work, fails to give sufficient weight to the cases cited in note 53 *supra*, and states, § 1108, that the Federal courts are opposed to the reproduction test, in support of which statement he cites, and quotes from, *Metropolitan Trust Co. v. Houston & T. C. R. R. Co.* 90 Fed. 683, a case decided in 1898. The most recent Federal authority, some 12 years later, is as strongly in favor of the reproduction cost test, as the earlier one is against it. Furthermore the criticism in the earlier case was principally on the ground that the element of going value, now invariably allowed, was not taken into account.

a plant having the same physical standards as the one which is being valued, or rather upon a work of substitution, by which is meant a modern plant of equal efficiency.⁵⁵ It is submitted that the latter has very little to commend its adoption, and in case the plant under consideration is comparatively new, nothing at all. The fact that the present plant is not up-to-date, due to piecemeal construction, to the addition of separate parts for the same use with the increase of business, and that its arrangement is consequently unscientific and uneconomic, is not, after all, a very serious objection. It greatly simplifies the task of the engineer to allow the present plant to be taken as a standard, and it does away with the questions of business policy, of the merits and demerits of particular modern systems which must otherwise necessarily arise. It will be found that the advocates of a real cost of *reproduction* as distinguished from the more general cost of present construction greatly predominate.⁵⁶

Prices.

Secondly, it must be decided what prices are to be used. This is a question which seems to have received very little consideration from the courts, despite its obvious importance. It should be the object throughout the process of valuation to eliminate abnormal conditions as far as possible.⁵⁷ This has been indicated in the discussion of the cost of original construction. While the fact that it is present value which is being ascertained is always to be emphasized, what is sought is not merely present value, but a fairly stable present value. Unless this is admitted, it will never

⁵⁵For a discussion of this question see 34 American Soc. of Civ. Engineers 1115 *et seq.* and *Hill v. Antigo Water Co.* (1909) 3 Wis. R. R. Com. Rep. 623. It should be noted that the cost of a substitute system, by which is meant for example the cost of the next available supply in the case of a water system is generally considered very poor evidence of present value. *Mifflin Bridge Co. v. Juniata County* (1891) 144 Pa. St. 365, 22 Atl. 896; *Spring Valley Water Company v. San Francisco* (1908) 165 Fed. 667-669; and *Beale and Wyman, Railroad Rate Regulation* (1906) § 528. For a case in which the estimated cost of a new system was considered in determining present value, see *Columbus Ry. & Light Co. v. Columbus, C. C., S. D. Ohio*, E. Div. No. 1206, Report of Special Master, June 8th, 1906.

⁵⁶See *Hill v. Antigo Water Co.* (1909) 3 Wis. R. R. Com. Rep. 623; *Kennebec Water District v. City of Waterville* (1902) 97 Me. 185, 54 Atl. 6, where cost of reproduction of present plant is favored; *Cedar Rapids Gas-light Co. v. Cedar Rapids* (1909) 144 Ia. 426, 120 N. W. 966, 970; 15 Harv. L. Rev. 267, approving that of a modern plant of equal efficiency.

⁵⁷*Hill v. Antigo Water Co.* (1909) 3 Wis. R. R. Com. Rep. 623.

do to hold that rates which are trimmed close to the margin of either reasonableness or unreasonableness are either the one or the other, for a slight change in this one factor will change the entire valuation and with it the character of the rate.⁵⁸ Valuations cannot be made in a day, and the readjustment of rates is generally undertaken only after periods of several years' duration. Normal or average prices seem to afford the desired stability and should be adopted.⁵⁹

Depreciation.

The cost of reproduction test has frequently been criticised because the plant, the present value of which is sought, usually is not a new plant.⁶⁰ But the cost of reproduction test as now applied does not mean the cost of reproduction new.⁶¹ It means the cost of reproduction new less depreciation, merely a recognition of the fact, so often reiterated, that it is present value which is being determined. The critics and opponents of this test do not seem to consider a separate consideration of such factors consonant with its adoption, but courts and other authorities which have used it apparently are not greatly troubled by the fact that they cannot at once reach a final result by one calculation along a single line.

The amount that should be deducted for depreciation depends almost entirely, as has been previously pointed out, upon the efficiency of management and the regularity with which repairs and

⁵⁸See *infra*, "Interest and Profit" where the same objection to the adoption of the present market rate of interest is noted.

⁵⁹*Cedar Rapids Gas Light Co. v. Cedar Rapids* (1909) 144 Ia. 426, 120 N. W. 966, 970; *Hill v. Antigo Water Co.* (1909) 3 Wis. R. R. Com. Rep. 623. *Contra*, *Brunswick & T. Water Dist. v. Maine Water Co.* (1904) 99 Me. 371, 59 Atl. 537.

⁶⁰See *supra*, note 49.

⁶¹*Cedar Rapids Gas Light Co. v. Cedar Rapids* (1909) 144 Ia. 426, 120 N. W. 966, 970; *Hill v. Antigo Water Co.* (1909) 3 Wis. R. R. Com. Rep. 623; *Knoxville v. Knoxville Water Co.* (1909) 212 U. S. 1, 9; *Lincoln Gas & Electric Light Co. v. City of Lincoln* (1909) 182 Fed. 926, 928; *Monheimer v. Brooklyn Union El. R. R. Co.* (March 8, 1910) Pub. Ser. Comm. 1st Dist. N. Y. Nos. 351 & 353 (10 cent fare to Coney Island) 15; *Monheimer v. Coney Is. & Brooklyn R. R. Co.* (Jan. 10, 1911) Pub. Serv. Comm. First Dist. N. Y. (Coney Island 10 cent fare case); *Pioneer Tel. & Tel. Co. v. Westenhaver* (Jan. 10, 1911) Sup. Ct. of Oklahoma, No. 503 (not yet reported); *Shepard v. Northern Pac. Ry. Co.* (1911) 184 Fed. 765, 803; *Columbus Ry. & Light Co. v. Columbus, C. C., S. D. Ohio, E. Div.*, No. 1206, Report of Special Master, June 8th, 1906, 42; 15 Harv. L. Rev. 266.

replacements have been attended to.⁶² Whether this factor and that of going value, which will be considered later, should not be disregarded because in practice they generally cancel one another, is a question which has not occupied the courts, although it has received some attention from engineers. To some extent, the two are connected because of the fact that in the early years of operation earnings may be inadequate even for the making of repairs and replacements. But if the similarity between the amounts of these two items is merely accidental, as it probably is, it would be better to consider them separately.⁶³ Either may properly be made a factor of safety, the use of which has already been alluded to.

Tangible Property.

With these preliminary considerations out of the way, the valuation of the tangible property by a determination of the expenditure required to construct a plant having the same physical standards as the one in question is a comparatively simple engineering problem. It is merely a matter of duplication in detail, and so long as no items are omitted, there seems to be no reason why this portion of the work should not yield an accurate result. All that is needed is the exercise of ordinary care and skill, guided by experience with plants of the kind being valued, *i. e.*, waterworks, street railways, *etc.*

The tangible property of any plant includes land,⁶⁴ equip-

⁶²It is said in *Monheimer v. Brooklyn Union El. R. R. Co.* (March 8, 1910) Pub. Serv. Comm. 1st Dist. N. Y. Nos. 351 & 353 (10 cent fare to Coney Island) 9, that 85% is regarded as an average standard of good condition. In Report of St. Louis Pub. Serv. Comm. on Rates for Electric Light, *etc.*, Feb. 17th, 1911, 59, the statement is made that the depreciation allowed in determining present value is not the same as that which is considered under operating expenses. This probably means that only an approximate calculation of the former kind of depreciation is necessary, for otherwise the statement is far from accurate. The two questions are closely related, and the determination of the sum which must be set aside yearly for a depreciation reserve in connection with the cost of annual repairs must aid materially in calculating present value. Furthermore, it is uniformly held that discarded and superseded property, that is, the very property which is written off by depreciation reserves, is not an element of present value. *Capital City Gas Light Co. v. Des Moines* (1896) 72 Fed. 829, 842; Report of St. Louis Pub. Serv. Comm. on Rates for Electric Light, *etc.*, Feb. 17th, 1911, 59.

⁶³Mathematical formulae for determining present value will be found in 52 Engineering Record 328-9.

⁶⁴The actual present value of realty, whether more or less than original cost, is generally taken, *Monheimer v. Brooklyn Union El. R. R. Co.* (March 8, 1910) Pub. Serv. Comm. 1st Dist. N. Y. Nos. 351 & 353 (10 cent fare to Coney Island); *People ex rel. Jamaica Water Supply Co. v.*

ment⁶⁵ and cash.⁶⁶ It also includes all the items of expenditure connected with the acquisition of each,⁶⁷ and the erection of all into a plant and its component structures.⁶⁸ An excellent list of the items of work and expense which form the tangible property will be found in an article by Mr. Frank W. Ford.⁶⁹ A fact to which he has called attention should be noted here. It is that

Tax Commissioners (N. Y. 1908) 128 App. Div. 13, modified 196 N. Y. 39; *Shepard v. Northern Pac. Ry. Co.* (1911) 184 Fed. 765, 805, but land is one item upon which some qualification of the present value rule is often necessary. This is the case when it increases in value so enormously that an adequate return thereon would be out of all proportion to the reasonable worth of the services. Report of St. Louis Pub. Serv. Comm. on Rates for Electric Light, etc., Feb. 17th, 1911. That this alone is ground for the rejection either of the present value basis or of cost of reproduction as a measure thereof as is sometimes argued seems hardly reasonable. Land and rights therein which are liable to such appreciation are usually susceptible of separate consideration, and the appreciation factor can consequently be handled without interference with other calculations.

⁶⁵In a recent case dealing with rates for electric light and power, it was claimed that the cost of meters and arc lamps was not a proper item, because under the law the company could compel its customers to install such appliances. But this contention was overruled on the ground that it was a proper item so long as the company did not take advantage of the law. See *Columbus Ry. & Light Co. v. Columbus*, note 67, *infra*.

⁶⁶*Working capital* is a generally recognized item. *Consolidated Gas Co. v. City of New York* (1907) 157 Fed. 849, 859; *Hill v. Antigo Water Co.* (1909) 3 Wis. R. R. Com. Rep. 623; *Lincoln Gas & Electric Light Co. v. City of Lincoln* (1909) 182 Fed. 926, 928; *Pioneer Tel. & Tel. Co. v. Westenhaver* (Jan. 10, 1911) Sup. Ct. of Oklahoma, No. 503 (not yet reported); Report of St. Louis Pub. Serv. Comm. on Rates for Electric Light, etc., Feb. 17th, 1911, 52. The credit of the concern is an important factor in determining how much should be allowed.

⁶⁷The cost of licenses and patent rights is a proper allowance where they are valuable and useful. *Columbus Ry. & Light Co. v. Columbus, C. C., S. D. Ohio*, E. Div., No. 1206, Report of Special Master, June 8th, 1906, 35.

⁶⁸While all essential disbursements necessary to reproduce the property are proper items, *Monheimer v. Brooklyn Union El. R. R. Co.* (March 8, 1910) Pub. Serv. Comm. 1st Dist. N. Y., Nos. 351 & 353 (10 cent fare to Coney Island) 9, it must be borne in mind that under the principles heretofore considered construction or investment in excess of present needs is not to be taken into account. *Boise City Irr. & Land Co. v. Clark* (1904) 131 Fed. 415. Thus, property purchased in anticipation of the growth of the community and of its future needs is not usually entitled to a present return. *Capital City Gas Light Co. v. Des Moines* (1896) 72 Fed. 829; *Consolidated Gas Co. v. City of New York* (1907) 157 Fed. 849; *San Diego Water Co. v. City of San Diego* (1897) 118 Cal. 556, 50 Pac. 633. To this extent, then, the present plant as a standard for determining the cost of reproduction, often requires some curtailment. There may be exceptions to this rule, where the public interest in a ready and adequate future supply exceeds its interest in present reasonable rates. *Long Branch Commission v. Tintern Manor Water Co.* (1906) 70 N. J. Eq. 71, 62 Atl. 474, affirmed 71 N. J. Eq. 790, 71 Atl. 1134 (summer resort). On the other hand, the value of the plants of subsidiary companies may be allowed where they are actually in use, even though the ownership is represented merely by stock. *Shepard v. Northern Pac. Ry. Co.* (1911) 184 Fed. 765, 809.

⁶⁹37 *Annals of the American Academy of Political & Social Science* 120-122.

certain items entering into the cost of tangible property have generally been included in the estimate of intangibles. These are the cost of acquiring land, the administration of construction work by the company's organization, general contractor's expenses, engineering expenses, and interest and taxes during construction. These are, of course, part of the cost of the tangible property.⁷⁰ The

⁷⁰The following items have been recognized as allowable, though it is often uncertain whether they are considered a part of the cost of tangible or of intangible property. *Interest on investment during construction*: Brunswick & T. Water Dist. v. Maine Water Co. (1904) 99 Me. 371, 59 Atl. 537; Coal & Coke Ry. Co. v. Conley (W. Va. 1910) S. E. 613, 642; Hill v. Antigo Water Co. (1909) 3 Wis. R. R. Com. Rep. 623; Monheimer v. Brooklyn Union El. R. R. Co. (March 8, 1910) Pub. Serv. Comm. 1st Dist. N. Y. Nos. 351 & 353 (10 cent fare to Coney Island) 15; Pioneer Tel. & Tel. Co. v. Westenhaver (Jan. 10, 1911) Sup. Ct. of Oklahoma, No. 503 (not yet reported); Shepard v. Northern Pac. Ry. Co. (1911) Fed. 765, 809; Columbus Ry. & Light Co. v. Columbus, C. C., S. D. Ohio, E. Div. No. 1206, Report of Special Master, June 8th, 1906, 41; Report of St. Louis Pub. Serv. Comm. on Rates for Electric Light, etc., Feb. 17th, 1911, 46, 50; 15 Harv. L. Rev. 267; *contra* Cedar Rapids Water Co. v. Cedar Rapids (1902) 118 Ia. 234, 91 N. W. 1081. *Cost of engineering*: Hill v. Antigo Water Co. (1909) 3 Wis. R. R. Com. Rep. 623; Monheimer v. Brooklyn Union El. Co. (March 8, 1910) Pub. Serv. Comm. 1st Dist. N. Y. Nos. 351 and 353 (10 cent fare to Coney Island); Columbus Ry. & Light Co. v. Columbus, C. C., S. D. Ohio, E. Div. No. 1206, Report of Special Master, June 8th, 1906, 41; Report of St. Louis Pub. Serv. Comm. on Rates for Electric Light, etc., Feb. 17th, 1911, 46; 15 Harv. L. Rev. *contra*; Cedar Rapids Gas Light Co. v. Cedar Rapids (1909) 144 Ia. 426, 120 N. W. 966, 970. *Insurance and taxes during construction*: Hill v. Antigo Water Co. (1909) 3 Wis. R. R. Com. Rep. 623; Monheimer v. Brooklyn Union El. R. R. Co. (March 8, 1910) Pub. Serv. Comm. 1st Dist. N. Y. Nos. 351 & 353 (10 cent fare to Coney Island) 15; Columbus Ry. & Light Co. v. Columbus, C. C., S. D. Ohio E. Div. No. 1206 Report of Special Master, June 8th, 1906, 41; Report of St. Louis Pub. Serv. Comm. on Rates for Electric Light, etc., Feb. 17th, 1911, 50. *Superintendence of construction*: Hill v. Antigo Water Co. (1909) 3 Wis. R. R. Com. Rep. 623; Columbus Ry. & Light Co. v. Columbus, C. C., S. D. Ohio, E. Div., No. 1206, Report of Special Master, June 8th, 1906. *Piecemeal construction* was taken into consideration in Hill v. Antigo Water Co. (1909) 3 Wis. R. R. Com. Rep. 623, but was rejected in Pioneer Tel. & Tel. Co. v. Westenhaver (Jan. 10, 1911) Sup. Ct. of Oklahoma, No. 503 (not yet reported), and Report of St. Louis Pub. Serv. Comm. on Rates for Electric Light, etc., Feb. 17th, 1911, 32. A similar item for *miscellaneous expenses* was allowed in Monheimer v. Brooklyn Union El. R. R. Co. (March 8, 1910) Pub. Serv. Comm. 1st Dist. N. Y. Nos. 351 & 353 (10 cent fare to Coney Island) 17, and in Columbus Ry. & Light Co. v. Columbus, C. C., S. D. Ohio, E. Div., No. 1206, Report of Special Master, June 8th, 1906, but rejected in Pioneer Tel. & Tel. Co. v. Westenhaver (Jan. 10, 1911) Sup. Ct. of Oklahoma No. 503 (not yet reported). Some of the difficulties which are encountered in determining the amount of allowance for interest on capital invested during construction are discussed in Report of St. Louis Pub. Serv. Comm. on Rates for Electric Light, etc., Feb. 17th, 1911, 46-50. In the proceeding last cited, a *general contractor's profit* was not considered to be a proper allowance. In Shepard v. Northern Pac. Ry. Co. (1911) 184 Fed. 765, 809, "interest at 4% per annum on the cost of reproduction of the railroad properties during one-half of the estimated times of their construction" was allowed. This was evidently an effort to find a practical method of averaging this item.

fact that the bricks and mortar in a wall are the only things about it visible to the eye does not make it sufficient to consider only those two items in determining the cost of reproduction of that wall.⁷¹ It is frequently difficult, however, to assign the other necessary expenditures to the proper class.

(TO BE CONCLUDED.)⁷²

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⁷¹Town of Bristol v. Bristol & Warren Waterworks (1901) 23 R. I. 274, 49 Atl. 974.

⁷²In the next number of this Volume.